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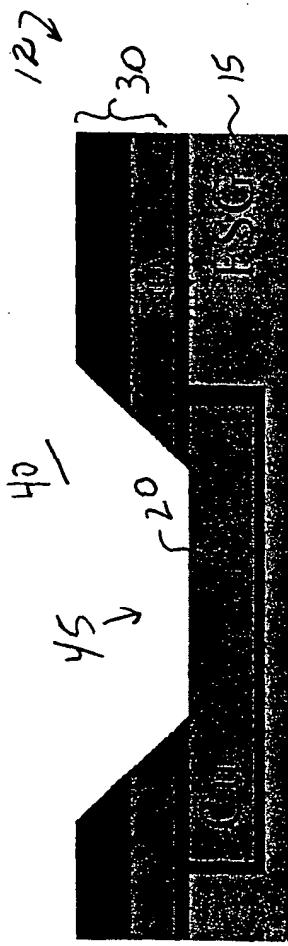
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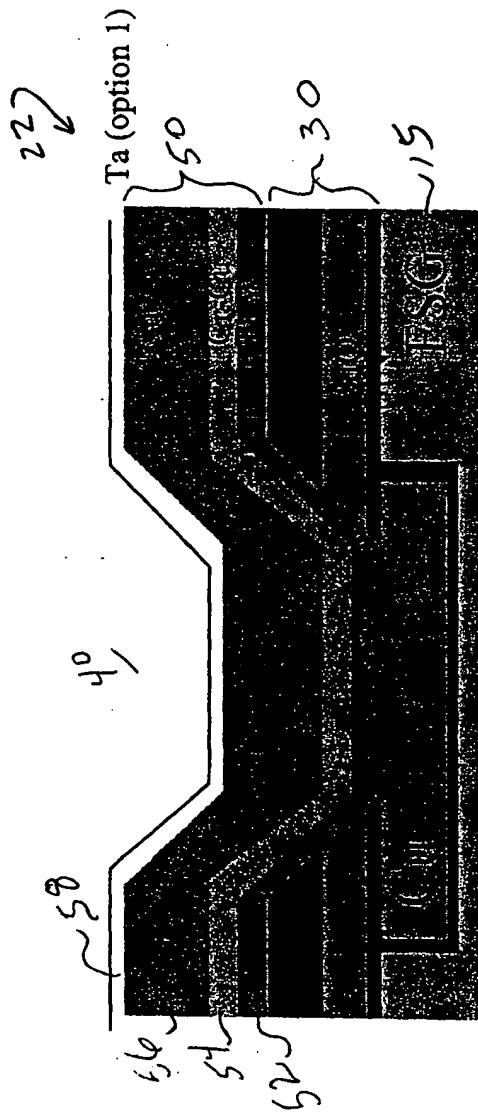
Timothy H. Daubenspeck, et al.
BUR920040048US1 (WDS)

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Fig. 1.



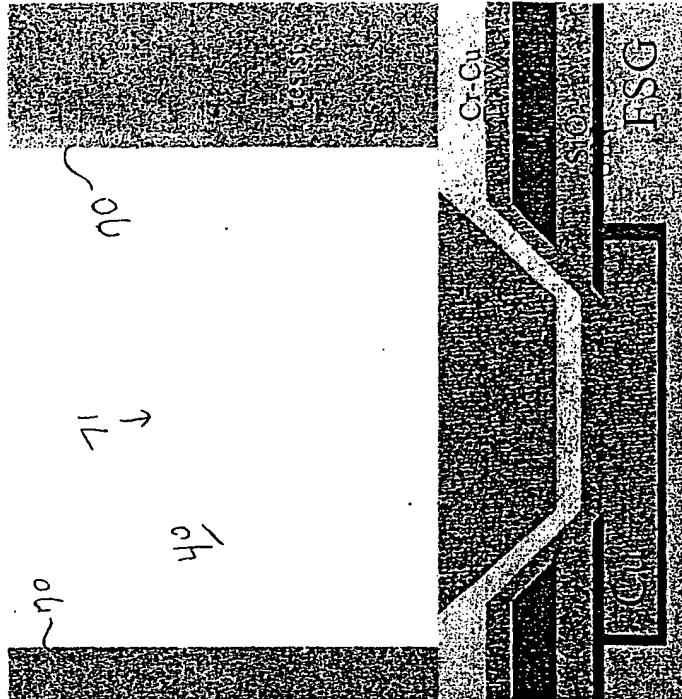
(a) Last metal Cu, deposit passivation, pattern terminal via patterning



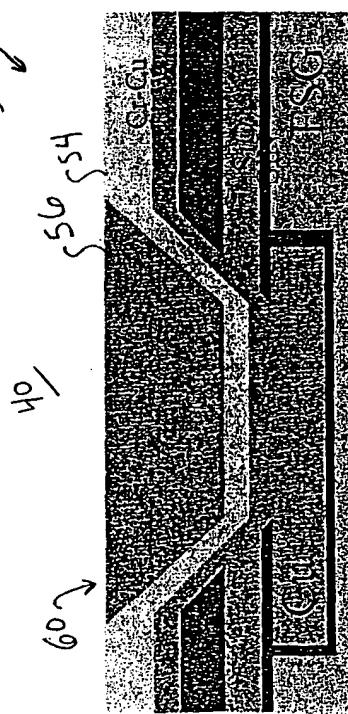
(b) Deposit barrier layer metals (TiW, CrCu, Cu) and polish stop (Ta, optional)

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(d) Pattern resist for C4 solder balls

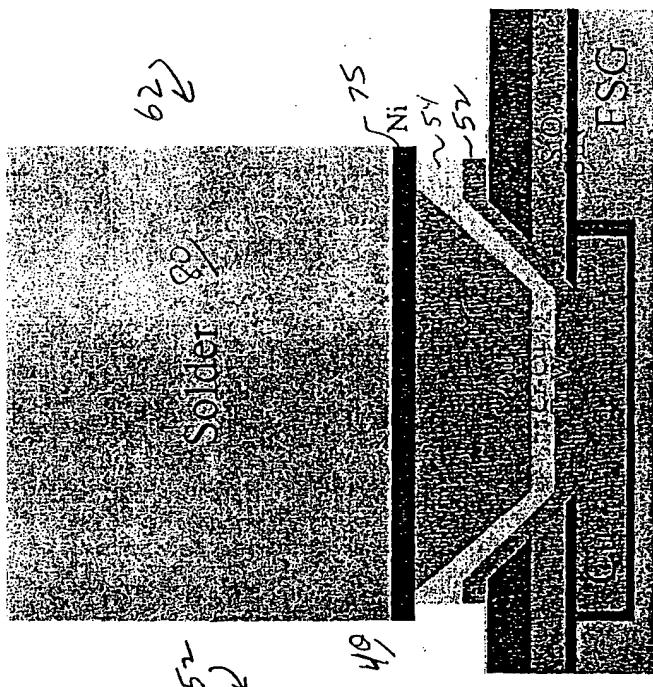


(c) Polish Cu, stop on Cr-Cu

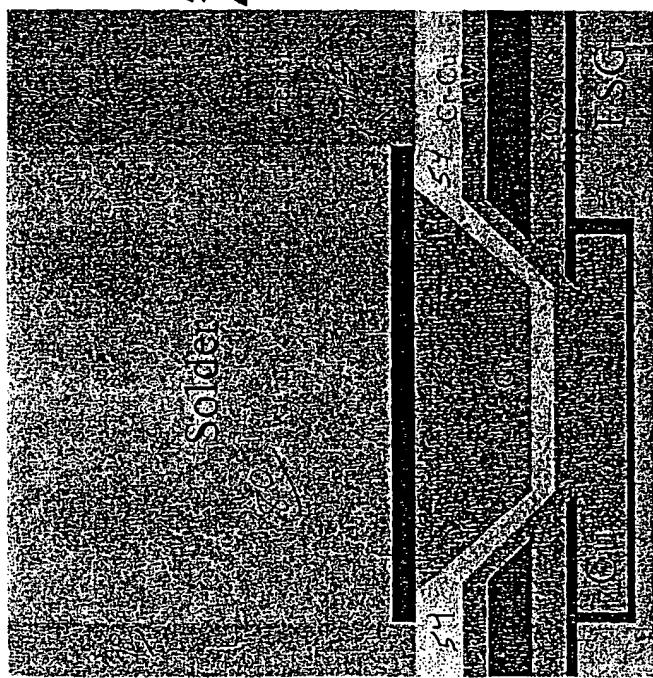
Fig 1

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(f) Wet etch Cr-Cu and Ti-W



(e) Deposit Ni, deposit solder by plating

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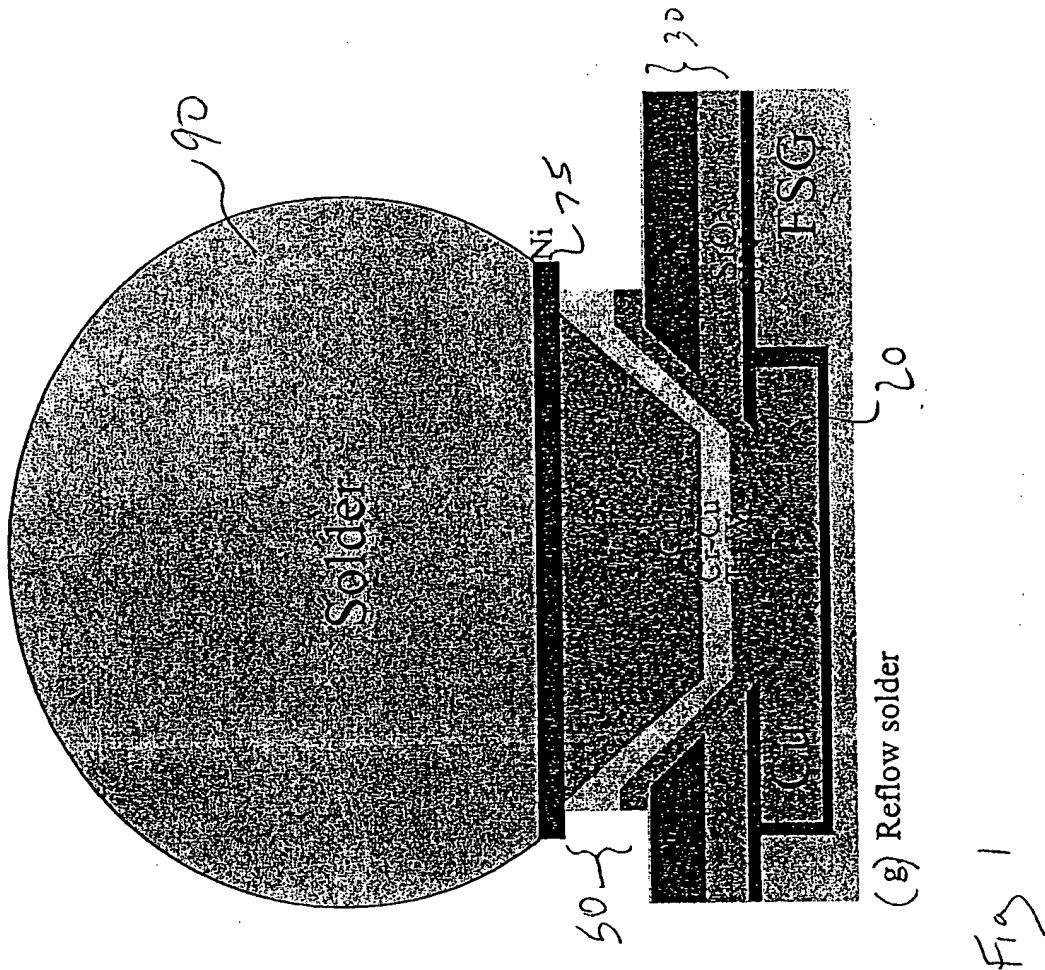
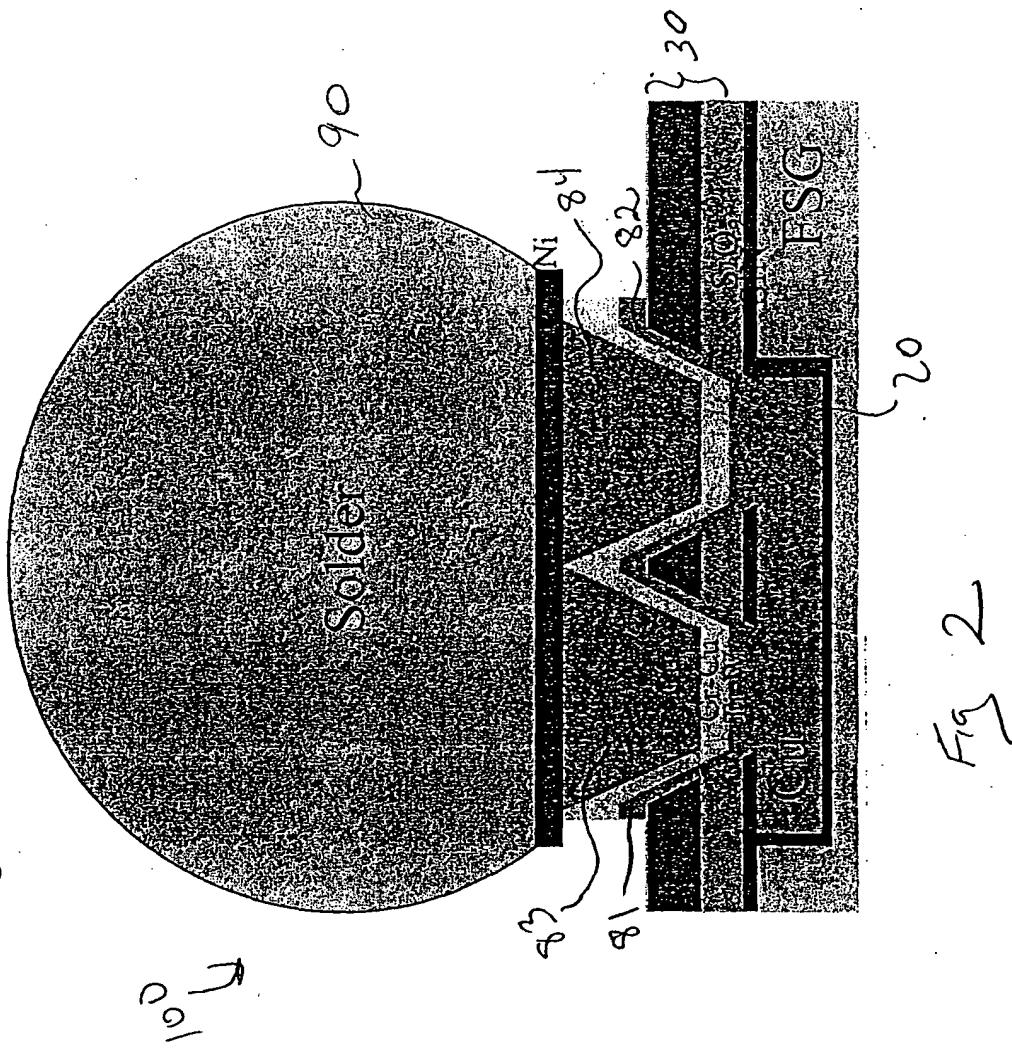


Fig 1

Option 2; Multiple small vias



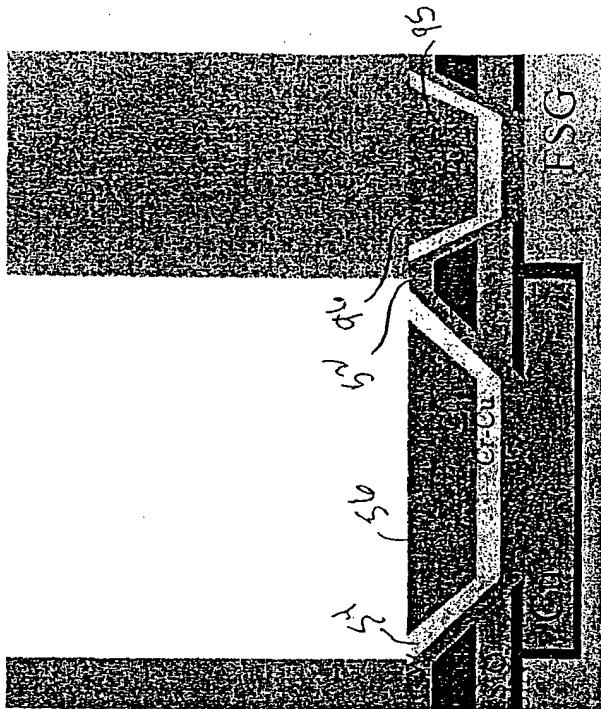
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Fig 2

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(b) Pattern resist for C4 solder balls

Option 3: polish Cu and Cr-Cu
 (with dummy vias to provide
 low resistance seed layer for
 electroplating)

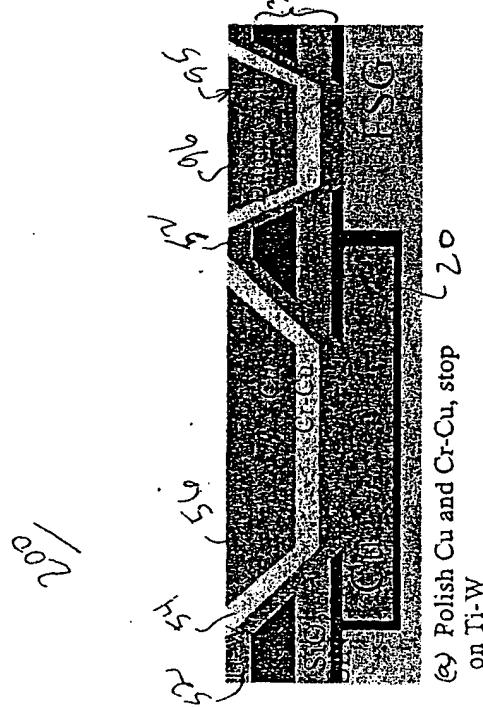
(c) Polish Cu and Cr-Cu, stop
 on Ti-W

Fig. 3

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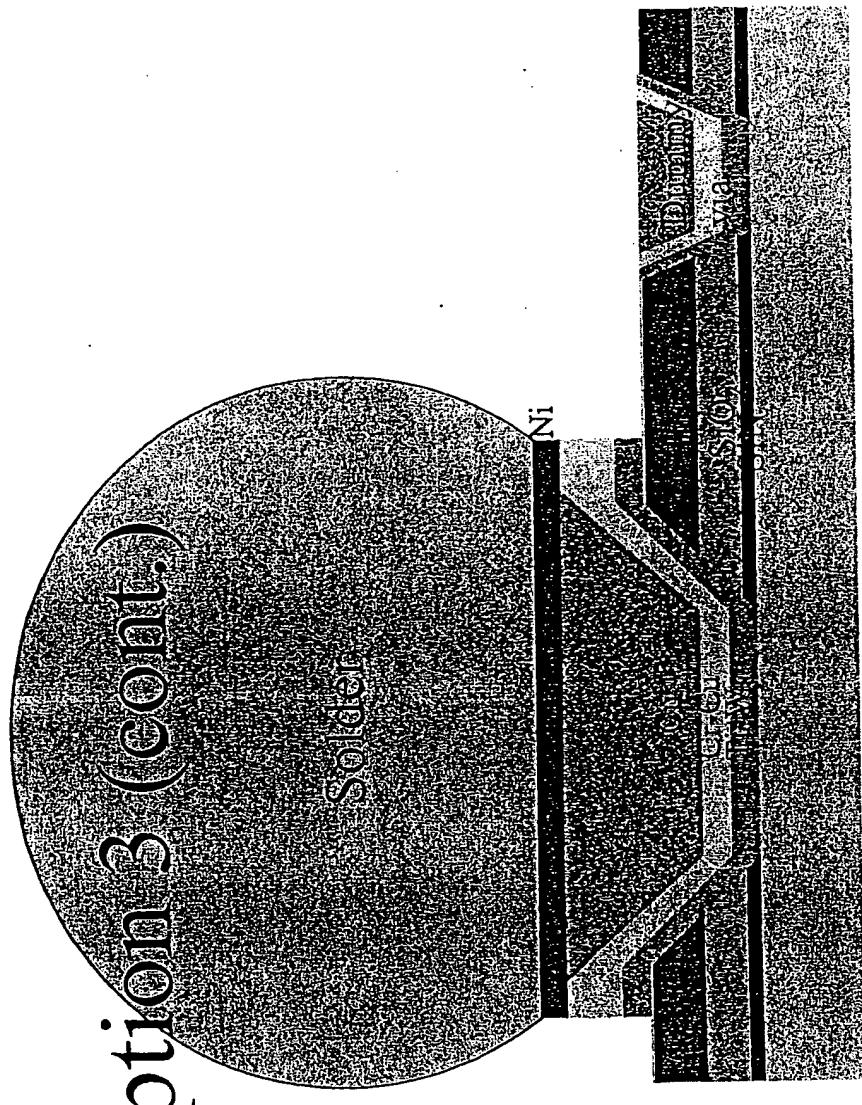


Fig. 3